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Policy

The U. S. Navy Medical News Letter is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to date items of official and professional interest relative to medicine, dentistry, and allied sciences. The amount of information used is only that necessary to inform adequately officers of the Medical Department of the existence and source of such information. The items used are neither intended to be nor are they susceptible to use by any officer as a substitute for any item or article in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.

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Notice

Due to the critical shortage of medical officers, the Chief, Bureau of Medicine and Surgery, has recommended, and the Chief of Naval Personnel has concurred, that Reserve Medical officers now on active duty who desire to submit requests for extension of active duty at their present stations for a period of three months or more will be given favorable consideration. BuPers Instruction 1926.1B applies.

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Voluntary Retirement

The policy of the Bureau of Medicine and Surgery is to recommend approval on requests for voluntary retirement of medical officers who have 20 or more years' active service creditable for retirement. However, because of personnel shortages, the Bureau may of necessity have to recommend modification of the requested effective date because it may not always be possible to furnish a qualified relief by the time specified in the request. (PersDiv, BuMed)

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Change of Address

Please forward requests for change of address for the News Letter to: Commanding Officer, U.S. Naval Medical School, National Naval Medical Center, Bethesda 14, Md., giving full name, rank, corps, and old and new addresses.

Regional Enteritis

Regional enteritis, an inflammatory disease primarily involving the distal part of the small intestine, presents many interesting facets. It is not a common disease and is often difficult to diagnose. In addition, its course may be quite variable and it may present many complications, locally as well as systemically. Its cause is not known. Its response to treatment is variable. Treatment in itself may vary because patients with this disease may be subjected to medical management, surgical management, or x-ray therapy.

The primary pathologic process seems to be an obstructive lymph-edema involving the lymphatics of the submucosa. Consequent on this, there develop interstitial edema and thickening, fibrosis, and eventual ulceration and inflammation of the lining of the small intestine as well as marked hypertrophy and inflammation of the bowel wall. Most pathologists who have studied this disease have been impressed by the presence of tubercles which are non-caseating and which may occur in any layer of the bowel wall, but are noted most often in the muscularis.

This disease may be considered as exhibiting phases that can be described as acute enteritis, ulcerative enteritis, and hyperplastic enteritis. Early in the course of the disease, when it is in the stage of acute enteritis, the patient may have abdominal pain, nausea, perhaps vomiting, and mild diarrhea. Pain may be present in the right lower quadrant of the abdomen. It may be associated with tenderness to palpation and with muscle spasm in this region. There may be low-grade fever. Laboratory studies frequently disclose leukocytosis. This phase of the disease may be short and may subside completely.

In many instances, however, the disease progresses to the phase of ulcerative enteritis, and eventually hyperplastic enteritis. When ulcerative enteritis has occurred, there is usually a history of diarrhea which may be mild to severe. Abdominal pain and cramping are usually present. In addition, there is loss of weight, weakness is complained of, and the patient usually has a very poor appetite. The diarrhea, when moderate or severe, may occur during the night as well as during the day. Approximately 15% of these patients are said to exhibit blood in the stool during the diarrheal phase, but massive bleeding is rare. On examination, patients in this phase of the disease may present an appearance consistent with that of anemia of varying degrees of severity. In addition, abdominal tenderness is frequently present and a mass is often felt in the right lower quadrant of the abdomen. If loss of weight has been severe and anorexia marked, there may be evidence of peripheral edema. In this phase of the disease, one may see evidence of complications which may occur locally and may consist of fistulas within the abdomen or fistulas from the ileum or other parts of the small intestine to the abdominal wall. In addition, peripheral complications may develop, such as iritis, arthritis and pyoderma gangraenosum.

When the disease has persisted long enough and attempts at repair have been made, the phase of hyperplastic enteritis is entered. It may not always be simple to divide the disease into these stages as outlined, but it is believed that this approach to the problem serves to clarify the thinking on the subject. When the bowel wall is thickened by the hyperplastic phase of regional enteritis, the commonest clinical picture is that of intermittent incomplete obstruction of the small intestine. The patient may complain of rhythmic cramping. There may be associated nausea, vomiting, and distention with borborygmi easily audible, and visible peristalsis may be easily seen. In addition, one may palpate a mass if the abdomen is not too distended. Occasionally, when the involved ileal segment lies low in the pelvis, it forms a mass that may be felt bimanually as an extrarectal mass. Usually, there is constipation, though diarrhea may be present. As might be expected, the patient has become increasingly debilitated from his disease by this time.

Three general methods of treatment are currently employed in the management of regional enteritis: surgical, medical, or a combination of x-ray and medical.

One may consider the indications for surgical management to exist when any of the conditions which follow are encountered: (1) obstructive disease, (2) extensive stenosing lesion with nutritional deficiency failing to respond to medical treatment, (3) presence of fistulas which may be ileoileal, ileojejunal, ileocolic, ileovesical or enterocutaneous, (4) abscess formation and sepsis, and (5) perforation with peritonitis.

The following situations might be considered as indications for medical treatment: (1) localized segmental involvement without complications; this will include most patients with regional enteritis; (2) long-standing low-grade disease process with no progression; (3) recurrence after surgical treatment; (4) extensive involvement, with multiple skip areas; and (5) to allow the acute phase to subside.

From the discussion, it is obvious that no single therapeutic regimen may be applied to all patients with regional enteritis. The treatment program to be followed is dictated by the clinical condition of the patient at the time he is observed and by the phase of the disease manifested at that time. (Sauer, W.G., Regional Enteritis: Diagnosis and Medical Management: Postgrad. Med., 19: 216-220, March 1956)

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Treatment of Cirrhosis of the Liver

Cirrhosis of the liver represents a chronic disease caused by serious parenchymal damage to the liver, usually of long-continued or repetitive type, in which malnutrition is usually regarded as an important accompanying and predisposing etiological factor. Because of its vital and widely diversified

metabolic functions, the liver is commonly exposed to a variety of damaging agents in the form of toxic chemicals, infections, circulatory disturbances, and systemic metabolic abnormalities, but the nutritional state of the organism is believed to act as a basic underlying factor which is capable of conditioning susceptibility or resistance to cellular injury.

Many classifications of hepatic cirrhosis have been proposed in the past, most of which are acceptable for general clinical orientation. The major forms which constitute quantitatively the most important therapeutic problems in the United States are: (1) Laennec's, or portal, cirrhosis, (2) postnecrotic cirrhosis, and (3) biliary or obstructive cirrhosis. Much rarer in incidence in this country are (4) parasitic cirrhosis, (5) pigmentary cirrhosis, and (6) hepatolenticular degeneration; (7) cardiac or congestive cirrhosis and (8) syphilitic cirrhosis are special forms which depend upon the presence of coexisting disease, and the management of these depends to a large extent upon successful treatment of the underlying conditions. Special mention should be made in passing of the tropical form of malignant malnutrition known as kwashiorkor which is indigenous to certain areas of Africa. It is characterized by serious and even fatal liver damage with cirrhosis and is due to the use of poor diets which are strikingly deficient in protein of high nutritional value. In many ways, certain basic principles underlie the therapeutic approach to all types of liver-cell injury. This summary deals primarily with the commonest of these diseases, portal or Laennec's cirrhosis.

Laennec's cirrhosis in the past has often been designated as "alcoholic cirrhosis" because of the frequent, but by no means invariable, association of the disease with chronic alcoholism. During the past 18 years, a multidisciplinary attack on the problems of hepatic metabolism has resulted in an accumulation of impressive evidence, both experimental and clinical, which in general relegates alcohol to a secondary position as an etiological factor, subordinate to malnutrition, especially in regard to good quality of protein and a number of vitamins and related nutrients. There remains, however, some evidence and opinion to suggest that the toxic action of ethyl alcohol may be important in the production of liver damage. From the practical standpoint at present, therefore, in addition to the prohibition of alcoholic beverages, the major therapeutic effort is directed toward the reestablishment of an optimal state of nutrition.

A specific plan of therapy of cirrhosis involves bed rest, the prohibition of alcoholic beverages, the providing of an attractively prepared nutritious diet, the sharp limitation of dietary sodium intake, the administration of antibiotics as needed to control intercurrent infection, the performance of paracentesis for control of marked ascites, and the use of mercurial diuretics as a supplement to other measures in the control of fluid and sodium retention. Special measures are needed to meet complications and emergency situations as they arise.

The successful therapeutic management of cirrhosis of the liver is best handled as a team project involving the internist, the dietitian, and the nursing staff, with occasional need for active surgical cooperation. In a chronic disease of this sort with a spontaneously variable course, it is often difficult to assess the precise value of various measures. Enormous patience is required on the part of the entire attending staff because satisfactory food intake, the most important single item in the plan of management, will often be disappointing for long periods and cooperation by the patient may be very poor. Plans must be made for the treatment to be as chronic as the disease, and a long period of hospitalization may serve not only as a turning point in a previously downward course, but also as a period of reeducation into a new pattern of living during which proper food habits may be well established and the first stages in reducing or eliminating alcoholic intake can be attempted. Rehabilitation of cirrhotic patients, therefore, extends far beyond the actual dietary details and remedial medications employed. For the pathway back to health for these persons is a long, rough, and discouraging one, especially when alcoholism is a major etiological factor, and necessarily involves the acceptance of a diet which is of low palatability for many persons when combined with abstinence from alcohol. For these reasons, an attitude of patience and sympathetic understanding on the part of the physician and his associates is important enough to justify special comment. (Gordon, E. S., The Treatment of Cirrhosis of the Liver: Arch. Int. Med., 97: 340-349, March 1956)

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Discoid Lupus Erythematosus

Although it is generally accepted that the various forms of lupus erythematosus are merely different manifestations of the same disease, the most common variety, namely, the chronic discoid form, has been regarded as primarily a localized manifestation whose systemic changes are either absent or missed. The object of this study is to point out that these generalized changes are very common in discoid lupus and have hitherto been overlooked.

Chronic discoid lupus is characterized by skin lesions which in the active phase consist of erythematous plaques of varying sizes with scaling, follicular plugging, followed in the healing stages by atrophy and either depigmentation or hyperpigmentation.

To the best of the authors' knowledge, no one has gathered a group of patients with chronic discoid lupus and carefully interviewed them, utilizing a questionnaire with particular emphasis on the clinical course of their illness and the systemic changes which they might have noted during it. This method was used by the authors. Each patient had, in addition, a complete physical

examination at the same time. The patients described were attending dermatology clinics and had had a diagnosis of chronic discoid lupus made by competent dermatologists either by the clinical appearance or by biopsy of the lesion or both. Patients with discoid-type lesions and compatible biopsies who had obvious disseminated disease, with fever, severe arthritis, anemia, and other changes typical of acute disseminated lupus concurrent with the onset of their cutaneous lesions, were not included in this series. Forty-one patients were selected as outlined. Twenty-six had the localized discoid form and fifteen had the generalized discoid form. Routine laboratory work, liver function tests, heparinized L. E. cell preparations, skin biopsies, and electrocardiograms were obtained on most of the patients.

The detailed clinical features are presented in tables where their incidences are compared to those found in a series of 62 cases with systemic lupus erythematosus studied at this hospital several years ago, or in other similar series. The sex ratio was 71% female in the discoid group as compared to 89% in patients with systemic disease. The median age of onset is 32 years in the discoid group versus 24 years with systemic disease. The disease appeared in both the localized and the generalized discoid group at about the same ages. Complete spontaneous remission in the skin lesions occurred in four patients only, although remissions in their systemic complaints were very frequent. The spontaneous over all remission rate in systemic lupus erythematosus is about 40%.

Chronic discoid lupus erythematosus has been regarded as primarily a skin disease with rare systemic manifestations. In order to determine the truth of this statement, the authors performed a complete history, physical examination, and routine laboratory work on a series of 41 patients with chronic discoid lupus erythematosus. The patients were divided into two groups: the localized discoid form with skin lesions above the chin, and the generalized discoid form with cutaneous involvement on the face and elsewhere. Sixteen of the 26 patients (62%) of the localized discoid group had evidence at some time in the course of their illness of arthritis, fever, Raynaud's phenomenon, pleurisy, or other systemic changes by history and physical examination alone. Fourteen of the 15 cases of generalized discoid disease had such changes. If, in addition, laboratory abnormalities such as leukopenia, elevated sedimentation rate, hyperglobulinemia, or abnormal flocculation tests were considered, then 24 of the 26 with localized discoid disease and all of the 15 in the generalized discoid group showed such changes. Therefore, there was evidence of systemic involvement in 96% of this group of patients with chronic discoid lupus.

Three different modes of onset of discoid lupus were found. Thirty-three patients (72%) had cutaneous changes initially, followed in 45% of the group by rheumatoid-like arthritis. Seven patients had rheumatoid arthritis prior to the appearance of discoid lesions. One patient had a biologic false-positive serologic test prior to skin lesions.

The classification of lupus erythematosus is an arbitrary one. There are many transitions between the types. Discoid lupus, from its inception, is a systemic disorder which is a variant of the more malignant acute disseminated form. The "benign"-appearing cutaneous lesion may be a herald of advanced systemic manifestations which may be present at the same time or later when the skin changes have healed. Therefore, all these patients should have a thorough general medical survey. The form of therapy instituted depends entirely upon the extent of the disease. (Dubois, E. L., Martel, S., Discoid Lupus Erythematosus: An Analysis of Its Systemic Manifestations: *Ann. Int. Med.*, 44: 482-495, March 1956)

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Treatment of Amebiasis by Glaucarubin

Compounds possessing potent amebicidal properties in experimental amebiasis have recently been isolated from plants of the genus *simarouba*, in particular from *Simarouba amara* and *S. glauca*. One of these fractions, a crystalline glycoside, has been designated glaucarubin. The present article reports an evaluation of this product in the treatment of acute and chronic amebiasis in man.

The drug was administered to 87 patients with amebiasis. The laboratory diagnosis of amebiasis was made in the chronic cases (78 patients) by examining several fecal samples obtained shortly after administration of a saline laxative. In the acute cases (9 patients), the fecal samples were examined immediately after discharge.

The drug was administered orally, dividing the daily dose into three parts. The dosages employed were varied considerably due to using a new drug and trying to establish an adequate therapeutic dosage. A schedule of 3mg. /kg. /day for five days was finally developed.

At the start of the treatment, all of the patients with chronic amebiasis had great quantities of cystic forms of *E. histolytica* in the feces. No patient could be considered a simple asymptomatic carrier because all had in variable degrees signs and symptoms of chronic amebiasis. When these patients were subjected to treatment with glaucarubin, clinical improvement was evident in all from the third to the fourth day, including those patients in whom the parasite continued to appear in the feces. Symptomatic improvement persisted after discontinuance of therapy and those patients who were infected only with *E. histolytica* were completely free of signs.

When treatment was started in the acute cases, all had the symptoms and signs characteristic of the severe form of amebic dysentery and contained a great number of mobile *E. histolytica* trophozoites in the feces. In these patients, the clinical response to treatment was rapid and spectacular. After 24 hours of treatment, the frequency of the stools had diminished

greatly, as well as the intensity of the tenesmus and abdominal pain. Between the second and the fourth day, mucus and blood disappeared completely from the feces and they were of normal appearance.

Clinical improvement was evident from the first to the sixth day after treatment had begun. No toxic symptoms were noted and the drug was well tolerated. Parasitologic examinations of the stool gave negative results as early as the first day of treatment; in only two patients did the parasites persist. No changes were detectable in blood counts and differentials in 36 patients or in liver function tests which were performed on 10 patients before and after treatment. After treatment was terminated, 54 patients were observed for a period of 1 to 13 months. Eight of the patients with chronic amebiasis developed recurrence of *E. histolytica*. (Del Pozo, E. C., Alcaraz, M., Clinical Trial of Glaucarubin in Treatment of Amebiasis: Am. J. Med., XX: 412-417, March 1956)

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Joint and Bone Disease Due to Mycotic Infection

The importance of pathogenic fungi as a cause of bone and joint disease has taken on added significance as the result of several developments. First, the control of pathogenic bacteria with chemotherapeutic and antibiotic agents has increased the relative frequency. Second, increased travel incident to military service and other factors has resulted in a dissemination of fungus infections. Third, therapeutic agents of a more effective nature for several of the mycotic organisms have become available recently.

Twenty-five cases of fungus disease, observed at the McGuire Veterans Hospital and the Hospital Division of the Medical College of Virginia, have been reviewed. These included 11 cases of blastomycosis, 4 of coccidioidomycosis, 4 of cryptococcosis, 3 of actinomycosis, 2 of histoplasmosis, and 1 of nocardiosis. In 8 cases, there was involvement of bone or joint.

The incidence of mycotic infection is much larger than is generally appreciated. The types of infection encountered are about as anticipated for this area, with the possible exception of the 4 cases of coccidioidomycosis. Each of these, however, gave a history of having traveled or maintained a residence in one of the endemic areas of California. The age range varied between 18 and 59 years, and was not felt to be unusual. The group of 25 included only one female patient.

Pathogenic fungi must be considered in the differential diagnosis of all infections involving bones and joints. Although, neither clinical studies nor roentgenographic examination can make an absolute distinction between a mycotic and a bacterial infection, there are certain distinguishing features that will aid in the differentiation. Mycotic joint and bone disease occurs as a part of a systemic infection. Dissemination or spread is by means of the

bloodstream with the possible exception of actinomycosis, in which case direct extension occurs. The lesions are usually multiple, widespread, and, in general, show a predilection for cancellous rather than tubular bone. In the case of cryptococcosis, there is a tendency towards involvement of the bony prominences. The roentgenographic appearance is that of an almost pure osteolytic process with little bone or periosteal reaction except, again, in occasional cases of actinomycosis. Sequestrae, if present, are usually small—a contrast with the usual reaction resulting from bacterial infection. When joints are involved, it is usually by direct extension from the initial bone lesion, and extensive damage occurs to the bone, cartilage, and the synovial membrane. Roentgen evidence of bone damage may exist for many months after skeletal pain and signs of systemic infection have disappeared. Tuberculous bone and joint lesions are most apt to be confused with mycotic infections, and it may be almost impossible to differentiate the two. Solely from a roentgenographic standpoint, mycotic infection of the bone may be difficult to distinguish from multiple myeloma, certain cases of metastatic carcinoma, eosinophilic granuloma, and other conditions. The clinical features of these varying diseases, however, should not offer real difficulty.

The failure to respond to the usual antibiotic and chemotherapeutic agents should arouse suspicion that the infection is not one resulting from the usual pathogenic bacteria. The diagnosis, however, can only be made by recovering the organism from the joint, bone, abscess cavity, sinus tract, skin, sputum, urine, or spinal fluid.

The prognosis for certain of this group of diseases has improved, due to the introduction of the aromatic diamidines as a more effective treatment measure. Stilbamidine is unstable in solution and has been found to be toxic for the trigeminal nerve; however, 2-hydroxy-stilbamidine does not have these disadvantages and is equally effective. Blastomycosis, cryptococcosis (except of the central nervous system) and actinomycosis have proven to be the most effectively treated. The various sulfonamides and antibiotics have been effective in some cases of actinomycosis and nocardiosis. Iodides in various forms and quantities have formerly been the drugs used most extensively and for the longest period of time. This drug has been effective to a limited degree in the treatment of blastomycosis, cryptococcosis, actinomycosis, and nocardiosis. Otherwise, the management has been largely symptomatic, supportive, or with the use of a wide variety of drugs and other treatment measures that enjoyed brief and unwarranted periods of popularity. To date, no treatment of value is available for coccidioidomycosis, histoplasmosis, or central nervous system cryptococcosis. (Toone, E. C. Jr., Kelly, J., Joint and Bone Disease Due to Mycotic Infection: *Am. Med. Sci.*, 231: 263-272, March 1956)

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Acute Urinary Retention Due to Drugs

Of the various drugs known to influence micturition in man, some are capable of producing urinary retention by interfering with the bladder emptying mechanism. A number of these are in wide clinical use today. For the most part, these medications affect bladder muscle function either by altering bladder muscle action or by causing profuse diuresis and consequent over distention of the bladder. In both instances, predisposing factors are important, and, in the experience of the authors, the most significant of these are debility, recumbency, and prostatism. The problem of acute urinary retention following the use of drugs occurs chiefly in middle aged and elderly men, but has been observed at times in young vigorous men as well as women.

The practicing physician needs to be familiar with the potential bladder effect of medications which he administers or prescribes, and must assess the bladder status of his patient prior to administration of any one of the drugs known to be capable of interfering with the bladder emptying mechanism.

Because the relation of parenterally administered mercurial diuretics to acute urinary retention has been considered in a previous article, concern in this presentation is limited to other drugs.

The physiology of micturition is not very clear. Its components are complex. Normal detrusor action by cholinergic stimulation results in reciprocal bladder wall contraction and vesical neck relaxation. Anticholinergic effect on the bladder is associated with relaxation of the bladder wall and vesical neck constriction. The explanation for this reciprocal action between the detrusor muscle and vesical bladder neck is unknown.

The most interesting development in the field of anticholinergic drugs in recent years has been the synthesis of new quaternary ammonium compounds which, in therapeutic doses, block parasympathetic ganglia and effector sites. In much larger doses, they also block sympathetic ganglia and neuromuscular end plates. Methantheline (banthine) bromide was the first of these in clinical use. Its effect in the treatment of gastrointestinal disorders, chiefly peptic ulcer, depends upon its action in decreasing secretions and motility. It has also been advocated in ureteral and vesical spasm, hyperhidrosis, and for the control of salivation.

Ephedrine and congeners intensify the normal adrenergic innervation of the bladder, believed to oppose cholinergic innervation, and, therefore, have an effect on bladder function similar to that of anticholinergic drugs.

Other drugs in this category are: amphetamine (benzedrine) sulfate, phenylephrine (neosynephrine) hydrochloride, naphazoline (privine) hydrochloride, mephentermine (wyamine) sulfate, methamphetamine (methedrine) hydrochloride, et cetera.

Ganglion blocking drugs have recently come into medical use for the treatment of hypertension. Perhaps the best known among these drugs are

hexamethonium and pentolinium tartrate (ansolysen). Both block sympathetic and parasympathetic ganglia. Among the many side effects of hexamethonium, acute urinary retention has been reported.

Apresoline, likewise widely used in the therapy of hypertension, has been reported to be responsible for difficulty in voiding with hypotonia of the bladder. The mechanism of this phenomenon is not clear.

Antihistaminic drugs have also been incriminated in the causation of acute urinary retention. Wolfson reported an instance following ingestion of tripeleennamine (pyribenzamine) hydrochloride. Uhle and Knoch mentioned several cases of difficult urination and one case of acute urinary retention following administration of phenindamine (thephorin) tartrate.

The antihistamines, among other pharmacologic effects, are known to have anticholinergic and adrenergic actions. The mechanism by which these agents produce bladder symptoms is believed to be an anticholinergic effect of detrusor weakness and sphincter spasticity.

Van Duzen has also listed the following antihistaminic drugs as provocative of bladder symptoms: chlorprophenpyridamine (chlor-trimeton) maleate, methapyrilene (histadyl) hydrochloride, thonzylamine (anahist) hydrochloride and chlorcyclizine (perazil).

There is little doubt that morphine and other narcotic drugs are important contributing factors in the production of acute urinary retention, especially in debility, recumbency, and prostatism.

Sulfadiazine ingestion has produced acute urinary retention by deposition of crystals in the urethra at the external meatus.

In the opinion of the authors, no patient with symptoms of prostatism should receive anticholinergic, adrenergic, ganglion blocking, antihistaminic drugs or opiates unless the need is compelling. Under these circumstances, the smallest doses feasible should be prescribed, and the medication discontinued at the earliest possible moment. During administration of such drugs, great vigilance should be exercised with regard to bladder status. Symptoms of increased urinary frequency, nocturia, slowing of urinary stream, and other bladder symptoms may not be volunteered by the patient. The physician often can disclose their presence only by specific inquiry. More definitive information in regard to bladder status can be obtained by determining the volume of residual urine. To disregard such symptoms and continue with the use of a drug in any of the above categories may result in acute urinary retention.

As soon as bladder symptoms appear, the offending drug should be discontinued. Usually, in the absence of prostatism, this will suffice for the return of bladder function to normal, but occasionally catheterization will be necessary. When acute urinary retention is precipitated by a drug in a man with antecedent prostatic symptoms, conservative measures may not suffice. Often, surgery becomes necessary. (Schneierson, S. J., Bergman, H., Acute Urinary Retention Due to Drugs: *J. Urol.*, 75:342-346, February '56)

Therapy of Carcinoma of the Urinary Bladder

This discussion is based on the study of 103 consecutive cases of carcinoma of the urinary bladder treated by the radiological department in cooperation with the department of urology. The authors are satisfied that radiation therapy is the method of choice, at least at the present time, and this can be either alone or in conjunction with simple surgical procedures. The authors aimed to establish this premise as a fact and to present what they have found to be an expedient and successful plan of procedure in the therapy of carcinoma of the urinary bladder.

Most authors agree upon the comparatively simple classification which divides bladder carcinoma into two main headings: (1) papillary type, and (2) non-papillary, or infiltrating type; each is further defined according to cellular type and graded according to activity.

The papillary type will include those formerly benign papillomas which have undergone malignant changes and are the cause of so many errors of judgment on the part of the cystoscopist who may decide the fate of the patient by the gross appearance of the lesion. The non-papillary type may be either ulcerative or nodular in character.

In either type, one cannot estimate the degree of malignancy, the extent of infiltration, or the presence of metastases on the gross appearance of the lesion alone; furthermore, as Cade points out, it is more disheartening to know that the microscopic findings can be misleading as well. This is due to the fact that small biopsies can completely miss malignant portions of a papillomatous tumor and show only the innocent appearance of benign villous epithelium, for such tumors are characteristically a mixture of widely dispersed clumps of malignant cells in a large field of benign tissue. Thus, to establish a diagnosis requires the exercising of the maximum of good judgment and scientific investigation. Once a diagnosis has been established, there remains a choice of treatment. At present, treatment is limited to three choices: (1) surgical excision or fulguration, (2) radiation therapy, and (3) the questionable adjunctive treatment with hormones.

The surgical procedures include transurethral resections, suprapubic resections, partial cystectomy, and total cystectomy with transplantation of the ureters. The published results of the various procedures belie the conclusion that one method has anything but technical advantages or disadvantages over the others.

Radiation treatment includes: (1) roentgen therapy, either of the closed external type or the contact type, through a suprapubic wound into a marsupialized bladder; (2) radium therapy, either with needles implanted into the tumor or with a plaque or a bomb placed within the bladder; (3) the implantation of radon seeds into the tumor or its site. Of these choices, it can be said that all of them have been tried separately and in combination.

In planning the course of action, the correct diagnosis is of primary importance. Then one must consider the extension of the disease. It has already been pointed out that there is great difficulty in estimating the extent of any lesion. The authors believe that, whenever the diagnosis of carcinoma of the urinary bladder is made, the patient should receive the benefits of radiation therapy whether or not there is evidence of local extension.

Another important consideration should be the general condition of the patient. Most frequently this is underestimated. The usual conception is that, if the general condition of the patient contraindicates surgery, radiation therapy is indicated. But with the exception of specific contraindications as, for example, cardiovascular disease, the biological effect of ionizing radiation makes it impossible for such patients to support a treatment of the magnitude of an adequate radiation therapy.

Because of the marked reaction of the bladder to radical radiation therapy, two factors pertaining to the patient's general condition must be attended before therapy is instituted. First, there must be satisfactory drainage of the urinary bladder. If there is an obstructing prostate gland, or the tumor mass itself blocks the urinary flow, the surgeon is obligated to resect and establish adequate drainage. Second, any bladder infection which might be present should be combated vigorously. One factor afforded by radiation therapy, which is closely related to the general condition of the patient, is the excellent psychological effect of being treated as an out-patient without having to endure a long hospital stay and formidable surgical procedures. Lastly, one has to consider previous therapy. Here, the utmost understanding between the surgeon and radiotherapist is necessary. If it is determined that surgery is indicated, the surgeon should consider the procedure from the standpoint of the radiation therapy to follow, remembering that maximum tolerated doses must be given if the patient is to be benefited. Fresh surgical incisions certainly hamper attainment of this goal.

The authors arrived at their conclusions partly by interpretation of the reports of the past, and partly by the results of following what they believe to be a systematic procedure for treating cancer of the urinary bladder. Their series of cases is not similar to many others reported in the literature in that it includes all types of primary carcinoma of the bladder in various stages of malignancy. No differentiation is made as to age, sex, or general condition of the patient. The ages range from 26 to 87 years with an average of 60 years; of these, 73% were males.

A single course of radiation therapy was given to 81 patients; 15 required two courses; and 7 were given three courses. One patient, who had received three courses of therapy, later developed a new lesion on the opposite side of the bladder, and a fourth course was given. The roentgen dose averaged 11,500 r as measured in air per patient. In many instances, the depth or tumor dose was better than 6000 r which is the level for which the authors strive. This dose was delivered with 200 kv. roentgen rays,

composite Thoraesus filter, 50 cm. target skin distance, 2.8 mm. copper half-value layer, through six pelvic ports and in fractions of 300 - 400 r daily.

Radon seeds were reserved for implantation of smaller tumor beds following fulguration of the tumor. The authors ordinarily use 1 mc. seeds with the usual 1 cm. distribution throughout the area involved, the implantation being done through the cystoscope.

Radium implantation was used in larger areas or in nonresectable tumors through a suprapubic incision. The implant, with low intensity needles, was calculated to give a dose of 4000 to 5000 gamma r minimum to the affected area. The use of either radon or radium does not preclude the use of external irradiation and in all cases a roentgen dose of 6000 r should be the goal.

Significant statistical results are compiled from these cases; twenty-four (29%) of them have survived for 5 years or more.

Comparing these results with published results of other therapists, the authors believe that this program for treating patients with carcinoma of the urinary bladder is the most logical, safe, and, thus far, the most successful. The complications of fibrosis, strictures, and fistulae—so often used as an argument against radiation therapy—are not an inherent result of the method. They are rather the fault of the therapist who treats his cases too rapidly and without due vigilance as to the patient's response. (Lockwood, I. H., Chapman, S. B., Therapy of Carcinoma of the Urinary Bladder: Am. J. Roentgenol., 75: 519-522, March 1956)

* * * * *

Operative Treatment of Pectus Excavatum

Pectus excavatum is a congenital anomaly in which the body of the sternum is depressed to form a concavity which may reach to the vertebral bodies, or, passing to one side, into the paravertebral gutter. The lower costal cartilages on either side bend back toward the dorsally displaced sternum, giving breadth to the concavity, the depth of which is usually maximal just above the xiphisternal junction. There is, therefore, a concavity from side to side and from above downward. The deformity is commonly noted soon after birth and the feature of greatest importance is the tendency toward progression. The degree and rate of progression are variable and inconstant. The concavity is conspicuous, unsightly, and a source of embarrassment to young individuals of either sex. The deformity of the rib cage and the spine in the more severe instances is quite plain, even when the patient is clothed. These patients usually have a thorax with decreased anteroposterior diameter, a moderate dorsal kyphos, and carry their heads thrust forward. Paradoxical inward motion of the sternum with inspiratory

movement is a conspicuous feature of the deformity in infants and children, until, with increasing years, the chest wall becomes rigid. This paradoxical inspiratory motion of the sternum may be seen to an astonishing degree in infants with the deformity. There is commonly a prominent protrusion of the abdomen on inspiration. The etiology of the deformity is not well established.

In some instances, the heart is compressed between the spine and the sternum, but more often, the depression of the sternum displaces the heart to the left, even in the less severe cases. In the more severe deformities, the heart is displaced far to the left and rotated posteriorly. Pushed out in the left hemithorax in a patient with a flat, thin chest the heart gives the impression of being imprisoned in the flattened chest between the anterior and posterior parietes—and, in fact, it may be so imprisoned. Such a degree of deformity does not often develop before adolescence, but it is not possible to predict which infant with pectus excavatum will go on to develop a severe deformity and which will not.

Operation is undertaken to correct the existing deformity and to prevent its progress. The younger the patient at the time of correction, the more favorable are his chances of attaining a normal thoracic contour with subsequent growth of the rib cage. If the deformity is severe, or if a competent pediatrician has observed it to progress, operation is undertaken at any age.

Operation is, therefore, undertaken for physiologic, orthopedic, and cosmetic reasons. If dyspnea, exercise intolerance, or cardiac arrhythmias are present, operation is strongly indicated. However, most children have no such symptoms and operation is generally advised even in their absence. In children with pronounced defects, operation should be undertaken before there is any evidence of physiologic disturbances. One cannot predict which children will ultimately suffer most if not operated upon. On the other hand, one may say that a less formidable procedure in infancy will probably insure normal development, whereas more extensive operation some years later may produce only a partial correction of the deformity.

The anteroposterior flattening of the chest and the kyphosis may improve or disappear if operation is performed early enough. The younger the patient, the simpler and smaller the procedure, and the better the results that may be expected. Corrective exercises cannot be expected to achieve much for an actual skeletal deformity such as this.

The deformity itself is the source of concern to children and parents and the basis for teasing by playmates. A sunken chest, with the clothes worn by both sexes today, can scarcely be hidden, particularly in the summertime. The extent to which a patient and his family have been disturbed has usually been fully appreciated only after the operation. Parents are apparently loathe to admit to wanting an operation of this character for what they construe to be cosmetic reasons, but the correction of the defect seems to permit the

patient and family alike to discuss freely what had previously been minimized by a protective reticence. (Ravitch, M.M., The Operative Treatment of Pectus Excavatum: J. Pediat., 48: 465-472, April 1956)

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Reunion at National Naval Medical Center

A reunion of officers attached to the National Naval Medical Center during the period, 7 December 1941 to 15 August 1945, is being planned for the period 10 - 11 November 1956. Mrs. John Harper and LCDR Grace B. Lally (4002 Redden Road, Drexel Hill, Philadelphia, Pa.) are members of a committee to obtain names, addresses, and expressions of interest of former officers attached to the Center.

The Surgeon General has expressed an interest in assisting the committee in planning their reunion.

LCDR Lally will supply interested officers with full details of the planned reunion. (National Naval Medical Center)

* * * * *

Residency Training in Allergy

There will be a space available for a resident in Allergy at the U.S. Naval Hospital, San Diego, Calif., beginning April 1956. Applications are invited from Regular officers and Reserves who have completed their obligated service. Prior training in Internal Medicine of one or more years is a prerequisite. (ProfDiv, BuMed)

* * * * *

Penicillin Prophylaxis of Gonorrhea

BuMedInst 6222.3B of 25 October 1954 has been interpreted by many as prohibiting the use of oral penicillin for the prevention of gonorrhea. This interpretation is incorrect. Medical officers are at liberty to use this chemoprophylaxis as they desire and should not refuse it to those who request it only on the basis of this instruction.

For the reasons set forth in that instruction, major emphasis on the prevention of venereal diseases should not be focused on chemoprophylaxis, since oral penicillin has been shown to be effective only in the prevention of gonorrhea, whereas the real Medical Department problem is bound up with other venereal diseases.

* * * * *

THE UNITED STATES NAVY

GUARDIAN OF OUR COUNTRY

The United States Navy is responsible for maintaining control of the sea and is a ready force on watch at home and overseas, capable of strong action to preserve the peace or of instant offensive action to win in war.

It is upon the maintenance of this control that our country's glorious future depends; the United States Navy exists to make it so.

WE SERVE WITH HONOR

Tradition, valor, and victory are the Navy's heritage from the past. To these may be added dedication, discipline, and vigilance as the watchwords of the present and the future.

At home or on distant stations we serve with pride, confident in the respect of our country, our shipmates, and our families.

Our responsibilities sober us; our adversities strengthen us.

Service to God and Country is our special privilege. We serve with honor.

THE FUTURE OF THE NAVY

The Navy will always employ new weapons, new techniques, and greater power to protect and defend the United States on the sea, under the sea, and in the air.

Now and in the future, control of the sea gives the United States her greatest advantage for the maintenance of peace and for victory in war.

Mobility, surprise, dispersal, and offensive power are the keynotes of the new Navy. The roots of the Navy lie in a strong belief in the future, in continued dedication to our tasks, and in reflection on our heritage from the past.

Never have our opportunities and our responsibilities been greater.

From the Note Book

1. The Military Medicine Section of the American Medical Association's Annual Scientific Program will meet, June 12 - 14, 1956, in Chicago. Captain C. L. Andrews, MC USN, Secretary of the Military Medicine Section, stated that this year's important and extremely valuable program will include papers by leading military and civilian physicians and scientists from all parts of the nation. Reserve Medical officers (Inactive) of the Navy, Army, and Air Force will receive retention or retirement point credits for attendance. Eligible medical officers are urged to take advantage of this opportunity. One point will be awarded for each day attended.

Rear Admiral H. L. Pugh, MC USN, Chairman of the Military Medicine Section, will present the opening address at 9:00 a.m., June 12, 1956. (TIO, BuMed)

2. Rear Admiral B. W. Hogan, Surgeon General of the Navy, recently announced that a complete Radioisotope Laboratory has been established in the Egyptian National Research Council Building, Cairo, Egypt. In support of the "Atoms for Peace" program, established by the President, the Radioisotope Laboratory is to be used for medical treatment of the Egyptian people. (TIO, BuMed)

3. Captain E. E. Hogan, MC USN, Director of Physical Qualifications and Medical Records Division, and Mr. Philip B. Wisman, Head of the Organization and Methods Branch, Administrative Division, have been designated as representatives of the Bureau of Medicine and Surgery at the dedication ceremony of the new \$16,000,000 Department of Defense Military Personnel Records Center, in St. Louis, April 17, 1956. Centralization of these records, together with the improved facilities of the new Center, will enable the Department of Defense to offer more efficient and expeditious record reference service. (TIO, BuMed)

4. Captain W. L. Engelman, MC USN, has been elected a member of the National Council of the American Society of Military Comptrollers. Captain Engelman is Comptroller and Director of the Comptroller Division in the Bureau of Medicine and Surgery. (TIO, BuMed)

5. Dr. G. B. Casey, Secretary, Council on Hospital Dental Service, American Dental Association, has informed the Commanding Officer of the U. S. N. H., Memphis, Tenn., that its dental service has been approved by the Council. Captain C. O. Williams, DC USN, is the Chief of Dental Service. (TIO, BuMed)

6. Sufferers from cancer, their families, physicians, and all concerned with the care of cancer patients are hereby advised and warned that the

so-called Hoxsey treatment for internal cancer has been found by the United States Court of Appeals for the Fifth Circuit, on the basis of evidence presented by the Food and Drug Administration, to be a worthless treatment. (DHEW, PHS)

7. The Public Health Service has placed contracts with five laboratories for large-scale screening of chemical compounds in the search for drugs useful in treating cancer. The laboratories are: Microbiological Associates, Bethesda, Md.; Wisconsin Alumni Research Foundation, Madison, Wis.; Southern Research Institute, Birmingham, Ala.; Hazleton Laboratories, Falls Church, Va.; and Stanford Research Institute, Menlo Park, Calif. (DHEW, PHS)

8. The possibility of complications resulting from the use of intestinal tubes and drains is discussed. Six case histories are presented which illustrate a variety of unusual complications resulting from the use of intestinal tubes or abdominal drains. (Am. J. Surg., March 1956; J.K. Stevenson, M.D., H.N. Harkins, M.D.)

9. Supervoltage roentgen therapy seems to offer nothing curative in cancer of the lung. There is evidence of significant palliation. It is suggested that nitrogen mustard combined with supervoltage radiation may be superior to radiation alone. (Am. J. Roentgenol., March 1956; T.A. Watson, M.D.)

10. Peripheral artery embolization is a medical and surgical emergency. The difference between prompt action and unnecessary delay may mean the saving of a limb instead of a needless amputation. (Arch. Surg., March 1956; R.J. Frank, M.D., L. Zaino, M.D., L. Brown, M.D.)

11. A method is presented for utilizing the urinary excretion of radioactive vitamin B12 in the diagnosis of Addisonian pernicious anemia. (Ann. Int. Med., March 1956; S.F. Rabiner, M.D., et al)

12. An article presents 4 cases of Ebstein's disease recognized during life and describes the characteristic features of this anomaly. (Am. J. Med., March 1956; J.W. Brown, M.D., D. Heath, M.B., W. Whitaker, M.D.)

13. The cause of an often fatal metabolic disease of children has been discovered. Drs. H.M. Kalckar, E.P. Anderson, and K.J. Isselbacher, in work conducted at the National Institutes of Health, Bethesda, Md., have unraveled much of the mystery surrounding the little understood children's disease, galactosemia, also known as galactose diabetes. (DHEW, PHS)

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Board Certifications

American Board of Internal Medicine

LTJG Hollis G. Boren MC USNR (Inactive)
LT John A. Broward MC USNR (Inactive)
LT William P. Daines MC USNR (Inactive)
LT Elvia E. Eddleman MC USNR (Inactive)
CDR Matthew J.M. Ellis MC USNR (Inactive)
LT William I. Freud MC USNR (Active)
LTJG Willard G. Glass MC USNR (Inactive)
LT Richard Gorlin MC USNR (Active)
LTJG Wilson Greene, Jr. MC USNR (Inactive)
LT Samuel H. Hay MC USNR (Inactive)
LT William M. Hicks, Jr. MC USNR (Inactive)
LT Fred M. Hunter MC USNR (Inactive)
LTJG Benjamin F. Huntley, III MC USNR (Inactive)
CDR Jack T. Jones MC USN
LCDR Nathan L. Marcus MC USNR (Inactive)
LTJG Robert R. McBryde MC USNR (Inactive)
LCDR Burch V. Raley MC USNR (Inactive)
LT Stanley Reichman MC USNR (Active)
LT Justin L. Richman MC USNR (Active)
LTJG Clement P. Stodder MC USNR (Inactive)
LCDR Daniel E. Yow MC USNR (Inactive)

American Board of Obstetrics and Gynecology

LTJG James E. Covell MC USNR (Inactive)
LTJG John D. Degenhardt MC USNR (Inactive)
LT William J. McCann MC USNR (Inactive)

American Board of Orthopedic Surgery

LTJG Lawrence L. Thompson, Jr. MC USNR (Inactive)

American Board of Otolaryngology

LCDR Byron T. Eberly MC USN

American Board of Pathology

LT Gilbert H. Friedell MC USNR (Active)
LT Leonard S. Gottlieb MC USNR (Active)
LTJG William S. Orr, Jr. MC USNR (Inactive)

American Board of Radiology

CDR Francis H. Holmes MC USN (Radiology)
CDR Lorraine E. Watters MC USN (Diagnostic Roentgenology)

American Board of Surgery

LTJG Thomas H. Connell, Jr. MC USNR (Inactive)
LTJG Merlin K. DuVal, Jr. MC USNR (Inactive)
LTJG Worthington G. Schenk, Jr. MC USNR (Inactive)
LCDR Theodore H. Wilson, Jr. MC USN

American Board of Urology

LT Robert G. Marks MC USNR (inactive)
LT James I. Tyree MC USNR (Inactive)

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Recent Research ProjectsNaval Medical Research Institute, NNMC, Bethesda, Md.

1. The influence of Specific Chemical Modification upon the Physical and Immunochemical Properties of Proteins I: The Effect of Guanidination upon the Interaction of Human Serum Albumin with Rabbit Antibodies. NM 000 018. 06.43, 15 October 1955.
2. Some studies on the Influence of Light on the Mating Activity of Anopheles Quadrimaculatus Say. NM 005 048.06.07, 25 October 1955.
3. Oxygen Toxicity and the Nerve Impulse, NM 004 005.09.01, 7 Nov. 1955.
4. Studies on the Use of Virulent Treponema Pallidum Syphilis. NM 005 048.17.02, 8 November 1955.
5. Pharmacological Studies on Irradiated Animals. IV Water Intake of Guinea Pigs as a Parameter for Oral Drug Administration in Experimental Radiation Therapy. NM 006 012.05.15, 8 November 1955.

Naval Dental School, NNMC, Bethesda, Md.

1. A Pilot Research Study on the Development of a Low-Vacuum, High Air-Speed Aspirator. NM 008 015 (Pilot), 1 November 1955.
2. Mandibular and Maxillary Grafts, NM 008 015.05—Rebuilding the Resorbed Alveolar Ridge. NM 008 015.05.01, 12 January 1956

Naval Dental Research Facility, Great Lakes, Ill.

1. Clinical Evaluation of Pulpotomy in Young Adults. NM 008 013.10.03, December 1955.
2. Lysozyme: Its Occurrence and Nature in Human Parotid and Whole Saliva. NM 008 013.12.06, December 1955.
3. Studies on Influenza Virus After Storage at 4° C for Periods up to 5 Years. NM 005 051.06.08, December 1955.
4. The Use of Solubel Antigen for the Serological Diagnosis of Influenza in a Vaccinated Population. NM 005 051.06.07, December 1955.

Naval Medical Research Laboratory, Submarine Base, New London, Conn.

1. An Evaluation of Ear Defender Devices. Report No. 271. NM 003 041. 56.06, 15 December 1955.
2. Effect of Increased Atmospheric Pressure upon Hearing. NM 002 014. 06.03, 21 December 1955.
3. Effect of Increased Atmospheric Pressures upon Intelligibility of Spoken Words. Memo. Report No. 55-8. NM 002 014.06.04, 22 December 1955.
(Additional Research Projects will be listed in next issue)

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BUMED INSTRUCTION 6320.16A

19 March 1956

From: Chief, Bureau of Medicine and Surgery
To: U.S. Naval Dispensaries
All Continental Activities Having Station Hospitals or Dispensaries
All Extracontinental Activities Having Station Hospitals or
Dispensaries with Authorized Beds.

Subj: Staffing Report, NavMed 1357 (Report Symbol Med 6320-7)

Encl: (1) Staffing Example with Exhibit I

This instruction requests information on staffing as it relates to workload. The information is required for budgetary and administrative uses by the Bureau and other components of the Department of Defense. BuMed Instruction 6320.16 (Notal) is canceled upon submission of the March 1956 report.

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BUMED NOTICE 6710

22 March 1956

From: Chief, Bureau of Medicine and Surgery
To: All Ships and Stations Having Medical/Dental Personnel Regularly
Assigned

Subj: Antibiotics; extension of potency dates

Ref: (a) Medical and Dental Materiel Bulletin (MDMB) Edition No. 64
of 1 March 1956

This notice provides authority to extend the potency dates of certain antibiotics.

BUMED INSTRUCTION 6710.28

22 March 1956

From: Chief, Bureau of Medicine and Surgery
To: All Ships and Stations

Subj: Defective medical and dental material; authority for disposition of

Ref: (a) Medical and Dental Materiel Bulletin, Edition No. 64 of 1 Mar '56
(b) Art 25-21 ManMed

This instruction provides authority for the disposal of defective material listed in paragraph IV of reference (a).

DENTAL**SECTION**

Inspector General, Dental, Visiting Dental Installations
in European and Middle East Mediterranean Areas

Rear Admiral Herman P. Riebe, DC USN, Inspector General, Dental, accompanied by his Executive Assistant, Lieutenant Commander Irvin D. Cox, MSC USN, is visiting dental installations in the European and Middle East Mediterranean areas during the period 4 April to 1 May 1956.

Dental facilities in London, England; Bremerhaven, Germany; Athens, Greece; Naples, Italy; Cairo, Egypt; Port Lyautey, French Morocco; Rota, Spain, and Malta are on Admiral Riebe's itinerary.

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Visit to Naval Training Center, Bainbridge

Members of the Department of Defense Dental Advisory Committee will visit dental facilities of the Naval Training Center, Bainbridge, Md., on 30 April 1956. The purpose of this visit is to obtain first-hand information on dental facilities and dental service rendered to recruits during the training phase. The committee will also discuss dental problems of mutual interest that may exist with the local dental officers. Scheduled to make the visit are: Dr. Thomas P. Fox, Chairman, Dr. Daniel F. Lynch, Dr. Francis J. Reichmann, Rear Admiral Ralph W. Malone, DC USN, Brigadier General Marvin E. Kinnebeck, USAF (DC), and Major General Oscar P. Snyder, DC USA.

"Mr. Disaster" on Nationwide TV Program

Captain John V. Niiranen, DC USN, U.S. Naval Dental School, NNMC, Bethesda, Md., presented the U.S. Naval Dental Corps Casualty Treatment Training Manikin, "Mr. Disaster," on a live television show "You Asked for It," in Los Angeles, Calif., on 9 April 1956. This presentation was then shown nationwide over a national TV network on the same program on 15 April 1956. The theme of the presentation emphasized the Navy's Dental Corps contribution for training in the care of mass casualties. "Mr. Disaster" had his debut before an estimated 20 million viewers on the nationwide program.

* * * * *

Dental Officers Selected for Postgraduate Course

Twenty-one Naval Dental officers have recently been selected for the General Postgraduate Course convening in September 1956 at the U S. Naval Dental School, NNMC, Bethesda, Md. They are:

CDR Lloyd M. Armstrong, DC USN
CDR James J. Brown, Jr., DC USN
CDR John F. Bucher, DC USN
CDR Frank Doboronte, DC USN
CDR Arthur E. Gustovson, DC USN
CDR Thomas H. Mayo, DC USN
CDR Walter E. Ralls, DC USN
CDR Robert M. Williams, DC USN
LTCDR Melvin L. Colton, DC USN
LTCDR Everard F. Jones, Jr., DC USN
LTCDR Clifford H. Prince, Jr., DC USN
LTCDR Michael Zustiak, DC USN
LT Gordon P. Baxter, DC USN
LT Bernard (n) Chap, DC USN
LT Lee A. Counsell, DC USN
LT Harold N. Glasser, DC USN
LT Jack D. Mahoney, DC USN
LT William B. Shreve, DC USN
LT Paul J. Sydow, DC USN
LT Maury E. Wortham, DC USN

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The printing of this publication has been approved by the Director of the Bureau of the Budget, 16 May 1955.

Examinations for Board Certification in
Prosthodontics and Periodontology

The annual examination for certification by the American Board of Prosthodontics will be held in Milwaukee, Wis., during the period, September 2 - 8, 1956, at the School of Dentistry, Marquette University.

The second half of the examination for certification by the American Board of Periodontology will be held in Indianapolis, Ind., during the period 12 - 13 April 1956, at the School of Dentistry, Indiana University.

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Dental Division (BuMed) Affiliate Member of
American Association of Dental Schools

During the annual meeting of the American Association of Dental Schools recently held in St. Louis Mo., the Dental Division, Bureau of Medicine and Surgery, Navy Department, was voted an affiliate membership in the Association in recognition of the Navy's Dental Officer Training Program.

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Dental Intern Training During Fiscal Year 1957

Three naval hospitals will be added to present listing of naval hospitals conducting programs of Dental Intern Training with the starting of fiscal year 1957. Listed below are naval hospitals* which will conduct Dental Intern Training Programs during the fiscal year 1957:

- * U.S. Naval Hospital, Camp Pendleton, Calif.
- U.S. Naval Hospital, St. Albans, L. I., N. Y.
- U.S. Naval Hospital, Philadelphia, Pa.
- U.S. Naval Hospital, Portsmouth, Va.
- U.S. Naval Hospital, Great Lakes, Ill.
- U.S. Naval Hospital, San Diego, Calif.
- U.S. Naval Hospital, Oakland, Calif.
- * U.S. Naval Hospital, Chelsea, Mass.
- * U.S. Naval Hospital, Corona, Calif.

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DT Training Requirements after 1 July 1956

The classes which will graduate from the Class "A" Dental Technicians Schools on 8 June 1956 are expected to bring the number of dental technicians up to authorized strength for the first time since January 1955. This will result in reduced requirements for dental technician training beginning 1 July 1956. In view of the reduced requirements, volunteer candidates or dental strikers who submit requests after 4 May 1956 will not be granted a waiver on the combined GCT/ARI test below 90.

All dental officers who contemplate recommending dental strikers for dental technician training with combined scores of less than 90 should have these personnel submit a request for the school immediately.

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Dental Interns Selected for Fiscal Year 1957

The following eighteen dental students, Ensign (1995), from civilian dental schools have recently been selected for appointment in the Dental Intern Training Program for the fiscal year 1957:

<u>Name</u>	<u>School</u>
Albers, Delmar Dean	University of Iowa
Baker, Ronald Dale	University of Pittsburgh
Brown, Kenneth Edward	University of Buffalo
Coombs, Paul Spencer	Georgetown University
Eichel, Frederick Pecht	University of Pittsburgh
Gordon, Jim Dudley	University of Iowa
Kieny, Richard Joseph	University of Nebraska
Lattner, Richard Alfred	University of St. Louis
Mainous, Elgene George	Ohio State University
McLeod, Carlton Joseph	University of Maryland
Marsalek, Daniel Eugene	Western Reserve University
Ott, Robert John	Georgetown University
Parent, Clarence Bernard, Jr.	University of Loyola (Nola)
Scharpf, Herbert Otto	University of Maryland
Thompson, Leon Talmadge, Jr.	Emory University
Williams, Sherman Luther	University of Pittsburgh
Wyne, Gene Kenyon	University of So. California
Valasek, Arden Dale	University of Nebraska

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MEDICAL RESERVE SECTION

Navy's New Research Clerkship Training Program

Sixty-day active duty for training at Naval Medical Research Activities is now available to medical students commissioned as Ensigns (1995), U.S. Naval Reserve, who have successfully completed their first year of medical school.

Known as the Navy's Research Clerkship Training Program, these clerkships offer a detailed review of the specific Research Program being conducted at the training activity. A part of the training will be spent in each research department and the trainee will serve as an assistant in actual laboratory research on one specific project underway at the time. In addition to providing summer employment for the undergraduate medical student, these clerkships offer valuable orientation and indoctrination into medical research as well as on-the-job training commensurate with the individual's professional attainments.

This program begins 1 July each year and ends 30 June of the subsequent year. It is authorized for up to, and including, 60 days' active duty with full pay and allowances and has been established at the following Naval Medical Research Activities in the quotas listed below:

<u>Activity</u>	<u>District</u>	<u>Quota</u>
Naval Medical Research Laboratory	1	4
Submarine Base	3	4
New London, Conn.		
Aviation Medical Equipment Laboratory	4	3
Naval Air Material Center	5	1
Philadelphia 12, Pa.		
Aviation Medical Acceleration Laboratory	5	1
Naval Air Development Center	9	2
Johnsville, Pa.		
U.S. Navy Experimental Diving Unit	5	2
Naval Gun Factory	PRNC	3
Washington 25, D. C.		

<u>Activity</u>	<u>District</u>	<u>Quota</u>
U.S. Naval Medical Research Institute	3	1
National Naval Medical Center	4	1
Bethesda 14, Md.	5	2
	9	5
	PRNC	3
U.S. Naval School of Aviation Medicine	6	2
Naval Air Station	8	2
Pensacola, Fla		
U.S. Naval Medical Research Unit No. 4	9	6
Naval Training Center		
Great Lakes, Ill.		
U.S. Naval Medical Research Unit No. 1	11	2
Life Sciences Building	12	1
University of California	13	1
Berkeley 4, Calif.		

Eligible and interested officers should make application to their District Commandant (Medical Reserve Program Officer) at the earliest practicable date. Early application will insure prompt processing of requests and forwarding of active duty orders.

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Training in Submarine Medicine - Active Duty

Fourteen days' active duty for training in Submarine Medicine for eligible Medical Reserve and Medical Service Corps officers is available at the Medical Research Laboratory, Naval Submarine Base, New London, Conn., beginning 7 May 1956.

This on-the-job training presents an up-to-date review of problems relating to Submarine Medicine and recent developments in Submarine Research.

Orders should direct the trainee to report prior to 1600 on the day preceding the convening of the course. Ten days' advance notice is necessary so that accommodations for trainees may be made available. Quarters, Messing and off-duty recreational facilities are available on the base. Off-station accommodations are very limited, facilities for families difficult to find, and expensive. However, New York City and Boston are accessible by auto or train. Secret clearance is required.

AVIATION MEDICINE SECTIONExcerpts from Medical Officers Report of Aircraft
Accidents and IncidentsCase No. 1 - F2H-3 - Damage: C - Injury Class: E

Pilot took off feeling "not too good, but good enough for hop." (Pilot was instructed by the flight surgeon the evening before the incident to contact the flight surgeon following morning if pilot were scheduled to fly.) Insofar as the pilot could tell, his flying was satisfactory on a routine gunnery hop until the 5th gunnery pass on which pilot collided with banner. Pilot's return to base and subsequent landing was uneventful.

This report is submitted because the flight surgeon feels that, though the medication taken may not have been the causative factor of the incident, it was a contributing factor. Cognizance is made that collisions with banners have occurred with pilots in an excellent physical and mental status.

Pilot consulted flight surgeon evening prior to incident about a head cold. He was advised that if certain medications were given to him, it would be necessary to ground him. Pilot, nonetheless, contacted a friend and obtained some Benadryl capsules (50 mgm.) and some capsules from a box. Instructions on box stated "do not fly for 24 hours after taking." Pilot took medications and on gunnery hop flew into banner doing class "C" damage to aircraft. He stated, when he broke off target, he felt he would easily clear same as he completed his gunnery run. Subsequent discussion with pilot of incident brought out statement, "I've learned my lesson now. Somehow, I thought you doctors were exaggerating the effect of these drugs on the body." Pilot did not report to flight surgeon immediately after incident. His commanding officer stated that pilot's sensorium seemed clouded and slightly hazy after landing when he questioned him.

Case No. 2 - F9F-5 - Damage: C - Injury Class: E

(Note: The Weekly Summary of Major Aircraft Accidents, published by the U. S. Naval Aviation Safety Center, indicates that progress is being made toward the goal of an over all major aircraft accident rate of 3.0 in 1956 in all categories except wheels-up landing accidents.)

On routine flight and landing, pilot dropped flaps and failed to lower gear. He touched down after one-third of the runway elapsed, heard the scraping, added full power, felt the aircraft go into an abnormal nose high, left banked attitude at an altitude of about 20 ft., cut the power, leveled the wings, and landed ahead. He continued to slide with little drop in airspeed to about three-fourths of the runway when he tightened safety harness and dropped tail hook and lowered gear. The plane stopped about 700 feet short of the end of the 8000-ft. runway. The pilot was unharmed.

This man has had a culmination of conditions. This was his third hop of the day. He was on duty since 0730 this AM. He had a good breakfast, but only a sweet roll and milk for lunch and nothing for supper because he "just didn't have an opportunity and he just didn't feel hungry." He had been on normal oxygen throughout the flight except for 100% during the take-off check-off since it had been recommended at night vision school. He was on normal oxygen at the time of the accident.

The flight surgeon recommends:

(1) That pilots and operations personnel give attention to scheduling of flight so that pilots will receive sufficient nutrition and rest prior to their flights.

(2) That whenever a distraction occurs during landing, pilots be informed of the necessity for extra caution in completing their check-off lists.

(3) That a visual indicator be provided so that ground personnel may check gear condition during night landings.

Case No. 3 - AD-6 - Damage: A - Injury Class: E

While crossing south leg of range station, after X/C flight, checked aircraft by switching to #1 inverter, mixture rich, and set up cockpit. Throttled back to 20" on break, slowed to 130 knots on downwind leg, let down to 1000 ft., put down flaps (full) and pitch in high at the 180. He did not use check-off list for last three items (pitch, flaps, and wheels). His custom was to lower gear at break. However, at this time, he was putting his running lights from flashing to steady bright. He recalls looking down at hydraulic pressure and noting pressure was up. He does not remember at any time consciously looking at gear indicator or putting the gear handle in a down position. First indication of trouble was after flare-out when he noticed sparks coming from prop hitting runway, followed by flame from the starboard side of engine. Evacuated aircraft promptly after coming to rest. Crash crew responded promptly.

This accident is another in a long Navy-wide series of wheels-up landings due to pilots' not thinking or as a result of mechanical flying, i. e., assuming the gear down and locked after an interruption of the sequence of habit patterns.

Prolonged interview in this case revealed no psycho-physiological causes for the pilot error. Actually, this pilot was most satisfied with his flight since everything went smoothly, that is, until he attempted to land with gear up. There was no rush to get home, no domestic or financial difficulties referable to a cause for the accident. Actually, the pilot states that he does not remember lowering the gear or checking the gear indicator. His first indication of trouble was noting sparks when the prop dug into the runway, followed immediately by fire.

The old "saw" that the flight is never over until the plane is safely in the barn holds true here.

There was no wheel-watch available as the accident occurred at night and on a weekend.

It is recommended that in an effort to pare down the number of wheels-up landings, whether or not a wheel-watch is posted, the following plan be adopted:

Heretofore, when a pilot at the 180° reports to the tower, "Wheels down and in the green," the tower operator would roger the transmission. If the tower operator would, instead of rogering this transmission, reply with a positive and emphatic statement such as, "Please check your gear handle and indicator visually and report in," it is felt that the pilot's attention would be directed toward making a definite check of his gear prior to landing. Granted, this will not get the proverbial 10%, but even a 50% reduction in wheels-up landings would effect tremendous savings to the Navy.

Case No. 4 - F9F-8 - Damage: A - Injury Class: E

This pilot was returning from a routine utility flight and was making a straight-in approach to the field and had completed his landing check-off list except for wheels and flaps, when the control tower told him to continue and make a routine break over the field. He was then told to break "long" over the field. During this time, he was keeping a sharp lookout for other aircraft in the pattern, since there was moderate haze present. He intended landing on 32L. While he was in this approach, an aircraft blew a tire landing on 32L, and 32L was closed by the tower. He decided to land short due to the tower notifying an aircraft coming in on a straight-in approach to 32R that the arresting gear was rigged. He then called, "Turning base, gear down and locked," and has no recollection of actually looking at the indicator. He was more occupied with airspeed and altitude and avoiding other aircraft. He centered his attention on the end of the runway, not observing the wheel-watch and set the aircraft down on the end of the runway. The wheels were not down on landing. The aircraft slid on the runway, suffering minor damage. The safety equipment functioned well and the pilot was uninjured.

The wheel-watch stated that he had waved his flags prior to touchdown, and flares were observed by the tower just as the aircraft passed the wheel-watch. The pilot did not observe these flares or the flags.

There were no sociological or physiological factors pertinent to this accident. Psychologically, this pilot is a stable individual. I believe that the primary factor in this accident was that the pilot was distracted by the numerous transmissions from the tower, and by having to be constantly on the alert for other aircraft in the pattern which he could not see due to the haze. He had had his mind set on a straight-in approach originally and was saving wheels and flaps for the last as he normally did. His train of thought was then interrupted several times by the subsequent events, so that by the time he called "gear down and locked," he had forgotten that he had not put his gear down. The fact that his flaps were down when he landed indicates that his train of thought was interrupted at the time he normally would have put his gear down, and that, following this distraction, he completed the rest of the landing normally.

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Hyperventilation Syndrome

A patient in the throes of hyperventilation syndrome may look and feel as if he were dying. At first, he may experience air hunger and a strange, apprehensive feeling of unreality, and then he may go on to dizziness, faintness, and a feeling of being utterly powerless; he has pain or tightness in the chest, pounding of the heart, numbness and tingling of the face and extremities, cramps and muscular stiffness. Occasionally, such an episode goes on to complete loss of consciousness or, more rarely, to overt tetany.

If examined during an attack, he is found to be pale, clammy, and cold, his pulse rapid and thready, and his blood pressure low, suggesting shock. Positive Trousseau and Chvostek signs may be elicited although the blood calcium level is normal. The syndrome is not so transient as ordinary syncope; it usually lasts for 10 minutes or longer, and recurs at variable times and frequency. When associated with effort, the episode takes place after rather than during the effort. The syndrome, whether terrifying or mild, is not rare. Raymond L. Rice (Marquette University School of Medicine) found an incidence of 10.7% among 1000 ambulatory patients.

The syndrome of hyperventilation is due precisely to that, yet the patient is not aware of hyperventilation; instead he is under the impression that he is short of breath; he senses air hunger. When seen in the office, however, he usually shows sighing respirations and excessive yawning. Indeed, these may often be a first clue to the diagnosis.

Hyperventilation is usually a manifestation of an anxiety state, but cerebral damage (as with encephalitis) may also disturb the respiratory center and cause overbreathing. Whatever the reason for hyperventilation, when sufficient carbon dioxide is blown off, a respiratory alkalosis is produced, and it is to this that the varied symptomatology of hyperventilation is due.

The low CO₂ content of arterial blood is held responsible for cerebral and peripheral vasoconstriction and for impaired dissociation of oxyhemoglobin. Vasoconstriction leads to a degree of cerebral anoxia, decreased cerebral blood flow, and increased cerebrovascular resistance. There are even electroencephalographic changes during the biochemical and symptomatic derangements of hyperventilation. The paresthesias and muscular manifestations, including tetany, are apparently due to peripheral neurovascular effects which result from vasoconstriction locally. The atypical chest pains are probably due to spasm of intercostal, pectoral, or diaphragmatic muscles during the state of alkalosis. The electrocardiogram at the time of an episode reveals significant depression of T waves and ST segments; these waves are reversible upon recovery and they can be reproduced by voluntary overbreathing.

Many so-called cases of hypoxia are, in all probability, really examples of hyperventilation. Flight surgeons should warn pilots of this danger when lectures are given on oxygen equipment. (Pfizer Spectrum: J. A. M. A. 159: 28, December 3, 1955)

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Student Flight Surgeons to Solo Again

Medical officers, undergoing training to be naval flight surgeons, have recently been granted authority to solo naval aircraft, provided they are physically qualified and meet proficiency requirements. The authority was granted by the Chief of Naval Operations and states that the flight surgeons will be authorized one solo flight in a T-34 Trainer plane.

The flight experiences of student flight surgeons have varied with operational demands, time requirements, and other variables during the past years. Prior to World War II, naval flight surgeons received their basic specialized medical training at the Army Air Corps School at Randolph Field, Texas. Later, these graduates received indoctrination flying at Pensacola. After the establishment of the Naval School of Aviation Medicine at Pensacola in 1939, flight surgeon students who were regular naval officers received flight indoctrination. Reserve officers were graduated as Aviation Medical Examiners rather than flight surgeons and were expected to acquire their flight experience at their first duty station after leaving the school. Land planes, used in this training, were the N2S and the N3N1. The N3N on floats was the seaplane which qualified regulars could solo.

Beginning with Class #22 in the summer of 1943, the opportunity for flight training was determined not by whether the medical officer was regular or Reserve, but rather by his physical qualifications, his motivation, his class standing, and the decision of the informal board which interviewed all eligible students. Usually about half of the students in each class got the flight experience.

Shortly after World War II, seaplanes and flying boats were transferred to Corpus Christi, Texas, and flight training for student naval flight surgeons was restricted to the N2S. Hours allotted were reduced by official orders from the previous 65 or 70 to less than 20.

In the fall of 1947, Class #49 encountered a change for the better as student flight surgeons were for the first time given their training in the SNJ. Twenty-four hours of instruction in A-Stage led to solo flight in the SNJ for all who qualified. Additional training in tactics and advanced training in attack planes meant that students had over 42 hours in single-engined planes. Sixty-nine periods of ground school instruction and a 10-hour navigation flight in a multi-engined plane completed the then current syllabus.

By Class #51 the advanced phase was being given in the Corpus Christi area and included a flight to Panama or the Caribbean. Rocket firing runs and GCA had been introduced by this time.

This program continued until the Korean war necessitated a reduction in the total hours allotted both the academic and the operational phases of the student flight surgeon's training. The medical postgraduate training was condensed from 6 months to 4 months, and the flight phase from 3 months to 6 weeks. The multi-engined training was discontinued.

In 1951, as helicopter pilots demonstrated their essential role in rescue operations in Korea, it became obvious that flight surgeons should have familiarization training in rotary wing aircraft. In the summer of 1951, Class #60 was the first to receive such helicopter familiarization. The flight course at this time included 27 hours of single engine experience and 5 hours in helicopters, backed up by 73 hours of ground school work.

Solo flying had to be eliminated when the war forced a speed-up of training for the doctors.

Now that the SNJ airplane has been replaced by the T-34B and the T-28 has been integrated into the regular training program for naval aviators, another change appears. Members of Class #78, which recently completed graduate medical training at the school, have entered the flight phase. They are the first class to receive this instruction in the new T-34's. All who are physically qualified will receive instruction, and those who demonstrate satisfactory proficiency will be allowed to solo. Such training is an important part of the young flight surgeon's experience before he goes out to the fleet air groups and squadrons. Here, as a flying crew member, he serves all the flying personnel of the command, both aviators and enlisted aircrewmen. The indoctrinational flight training is an important aspect of his preparation since it provides the young medical officer a means of identification with the aviator and a keener appreciation of morale within the air group and fosters a doctor-patient relationship which is so vital in a military setting. (Service Information Office, U.S. Naval School of Aviation Medicine, Naval Air Station, Pensacola, Fla.)

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Air Travel and the Ambulatory Patient

Transportation of patients by air is a dual problem. One of these is movement of critically ill individuals or stretcher cases for whom special equipment, attendants, and detailed arrangements must be provided. The other, which is the subject of this article, has to do with the ambulatory patient who is to travel as an ordinary passenger on a commercial airline.

In recent years, travel of the latter type has reached major proportions. During 1954, it is estimated that approximately 1,000,000 of the 34,500,000 passengers flown by the regularly scheduled airlines of the United States were suffering from some disease or disability ranging in type and severity from the common cold to the advanced stages of cancer. These figures serve to explain why physicians are increasingly being asked to advise their patients with reference to air travel and suggest that all clinicians should be fully qualified to deal with this subject.

While the great majority of ambulatory patients can fly on commercial airlines without suffering any ill effects, there are some important exceptions to this general rule. There are also cases in which a careful evaluation of all the circumstances will be necessary before a decision is made.

Whether any given patient should travel by air depends on a number of conditions in addition to the type and severity of the patient's ailment. For example, one must take into account certain advantages as well as any disadvantages of air travel, pertinent health laws and air transport regulations, the comparative safety of flight and, finally, the possible effects of aerial environment on the disease entity concerned.

The question of whether the patient should travel by air or by some other means is seldom a purely academic matter. One of the most important considerations is to save time in reaching a specialized medical center when the immediate treatment of an acute illness or injury is deemed necessary. In traveling to distant points for recreation, rest, or convalescence, many patients find that air travel is the most convenient and comfortable as well as the least fatiguing, and this enhances their general well-being. In addition to considerations related to health, many ambulatory patients desire to fly for economic or business reasons.

Travel by patients suffering from a contagious disease comes under the jurisdiction of the U.S. Public Health Service; such patients are not acceptable for transportation on any type of public conveyance, including aircraft.

Most airlines also conform to a regulation of the Air Transport Association of America that reads: "Participating carriers will refuse to carry, or will remove en route, any person whose status, age, physical or mental condition is such in the opinion of the participating carrier as to render him incapable of caring for himself without assistance, contributing to the discomfort of, or making himself objectionable to, the other passengers, or involving any hazard or risk to himself, to other persons, or property."

This regulation is designed to eliminate as ordinary passengers those patients who cannot be transported safely by any means and those who can be transported by air, but require facilities or attendants not normally available on commercial aircraft. It should be kept in mind, however, that this latter type of patient may sometimes be accommodated by the airlines if proper prior arrangements are made for the necessary special attendants. Also, there are over 200 local flying services throughout the United States that have charter aircraft especially equipped to fly those who are seriously ill.

Commercial aviation today is much safer than is generally realized. During 1954, as has already been stated, the airlines of the United States carried some 34,500,000 passengers. When the airlines' accident fatality rate for that year is compared with those of other forms of transportation on a passenger-mile basis, we find that while air travel was slightly more hazardous than bus or steamship travel, it was safer than travel by railroad, ground ambulance, or private automobile. It is thus quite evident that, rather than being relatively dangerous as sometimes assumed, scheduled commercial flying compares very favorably with other means of public or personal transportation.

Airlines are forbidden by Civil Air Regulations to exceed certain limits of performance that might endanger the health and lives of passengers. It is for this reason that we can predict fairly accurately the type and degree of deviation from normal to which a patient traveling by air may be subjected. These deviations are only two in number. The first is airsickness, which is clinically identical with carsickness, trainsickness, and seasickness and, thus, is not peculiar to flying. Etiology and symptomatology of motion sickness are too well known to require elaboration here. The second factor that must be taken into account is the maximum altitude to which the patient may be safely exposed. This factor is significant for two reasons. It determines the maximum expansion of the gases contained in the closed body cavities resulting from the decreased atmospheric pressure with ascent. It also determines the maximum degree of hypoxia that may be anticipated.

Essentially, all airplanes used on the principal domestic and overseas routes are equipped with pressure cabins. Existing Civil Air Regulations require that these airplanes be capable of maintaining a cabin pressure not exceeding that equivalent to 10,000 ft. altitude regardless of the actual altitude at which the airplane itself may be operated. Accordingly, passengers in this type of aircraft will not normally be exposed to more than 10,000 ft. conditions and it usually is considerably less than this.

In the conventional airplane, used principally on short "feeder" routes, flights are generally made at moderate altitudes. However, it may sometimes be necessary to fly up to 15,000 ft. or slightly higher to get over storms or high mountains. To protect the passengers from excessive hypoxia on these occasions, Civil Air Regulations provide that on any flight, which is to

exceed 8000 ft., a supply of oxygen must be available for use if necessary. Thus, in this type of airplane a patient might be exposed to decreased pressure effects and hypoxia produced by exposure to 15,000 ft. altitude, except that above 8000 ft. hypoxia can be entirely eliminated if the available oxygen is requested and used.

Deciding whether any given patient may travel by air as an ordinary passenger is greatly simplified if various altitudes are converted to their respective physiologic effects on the body, as has been done as follows:

<u>Altitude</u>	<u>Relative Body Gas Volume</u>	<u>% Arterial O₂ Saturation</u>
Sea level	1.0	96.0
5,000 ft.	1.2	92.0
10,000 ft.	1.5	88.0
15,000 ft.	1.9	80.0

Our first task is to be certain that the patient is not suffering from a contagious disease and that he is acceptable as a passenger on an airline in accordance with their regulations.

Airsickness. We next should consider the possibility of the patient's becoming airsick and decide whether the resultant nausea and vomiting would have any detrimental effect on the primary disease. In this connection, we would think of moderately severe cases of valvular heart disease, angina pectoris, coronary thrombosis, hypertension, and of peptic ulcer patients threatened with perforation.

Where it is desired to reduce possibility of airsickness to a minimum, prophylactic use of one of the recently developed anti-motion-sickness remedies is indicated because they are highly effective and have few, if any, side effects.

Expansion of body gases. Gases normally present in the middle ears, sinuses, stomach, and intestines will expand at altitude to the extent shown in the above table. Gas in the middle ears and sinuses will cause difficulty with ascent only if the orifices of these organs are blocked, in which case the resulting pressure will cause localized pain which may become quite severe. The same applies to descent except that the pressures will be negative.

At the higher altitudes, large unsupported hernias may become distended and strangulate. Patients with colostomies should be advised that their colostomy bag will tend to fill rapidly during ascent and that it ought to be emptied just before departure time or disposable bags utilized. Patients with appendicitis or with deeply eroded peptic ulcers or other serious weaknesses of the gastrointestinal wall may be endangered by expansion of the contained gases, especially if the latter are present initially in more than normal amounts. Individuals suffering from a pneumothorax should definitely not fly since expansion of the trapped gas will force the mediastinum laterally with serious consequences.

Hypoxia. Fortunately, the first portion of the oxygen dissociation curve is quite flat and it is not until we pass 10,000 ft. altitude that hypoxia becomes of much significance in the normal resting person. Few physicians appear to realize this fact and as a consequence have been unnecessarily restrictive in permitting cardiac and respiratory patients to travel by air.

Patients with symptom-free and compensated valvular heart disease, quiescent angina pectoris, ambulatory coronary thrombosis, hypertension with a diastolic pressure of 110 mm. Hg. or less, and chronic anemia, and leukemia patients with a hemoglobin of 60% or above, all can fly without question. In borderline cases, the patient can be flown if oxygen is used. Individuals with more serious involvement of the cardiovascular system should, of course, not be permitted to travel as ordinary passengers.

Persons suffering from pulmonary diseases can usually fly without difficulty provided their pulmonary reserve is not reduced to the extent that the patient exhibits dyspnea on slight exertion. If dyspnea exists, these patients should not fly. Patients in status asthmaticus are not suitable as air passengers, but those with mild asthma can travel between attacks.

Infants less than 10 days old and individuals in an advanced stage of general deterioration from old age should normally not fly. Pregnant women suffer no adverse effects and can be accepted without question, provided, of course, there is reasonable assurance they will arrive at their destination before going into labor.

After eliminating from consideration patients who are not acceptable as passengers on any type of public conveyance or who are too ill to be moved over long distances by any means, it is apparent that there are relatively few ambulatory patients who will be adversely affected by air travel. Identification of those who should not fly is relatively simple if airline flight procedures are understood. In questionable cases, the medical director of the airline concerned is qualified to provide expert opinion and guidance. (Major General Harry G. Armstrong, USAF (MC): Therapeutic Notes, Parke, Davis and Company, 63: 13-16, January 1956)

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Frequent Discrepancies in Submitting Standard Forms 88

Discrepancies in submitting the Report of Medical Examination, Standard Form 88, have increased to a point where some are now being returned to the examining activity for completion. This requires an unnecessary administrative work load on that activity as well as on the Bureau of Medicine and Surgery, not to mention the delay in processing the report. Guidance can be obtained by noting the red marks on the returned Bureau-approved copy. These red marks may indicate: (1) an omission (red circle); (2) that the item reported is not completely within normal limits, or is borderline; or (3) that the item may have been previously reported as defective.

Reviewing officers should study the returned Bureau -approved copies for guidance in subsequent submissions as well as ascertaining the Bureau action. In many cases, the Bureau's endorsement contains certain stipulations or requests for further examinations. The cooperation of the reviewing officers in this review will improve the reports and eliminate delays due to the returning of incomplete forms.

Standard Forms 88 have been returned recently for combinations of the following discrepancies and omissions: (1) Speech Qualifications for Naval Aviation Observers (Radar) and for Air Controlmen; (2) Flight Time; (3) Marks and Scars; (4) Depth Perception ("Passed" is insufficient—must be reported as "8/8" et cetera); and (5) Current Refractions.

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